

Application No. 10/074,653
Amendment dated August 25, 2003
Reply to Office Action of June 25, 2003

Amendments to the Specification:

Please replace paragraph [0002] with the following amended paragraph:

A1
[0002] This invention relates to a variable optical attenuator for use in optical telecommunications networks. Specifically, the present invention provides a polarization insensitive Variable Optical Attenuator (VOA) based on ~~an~~ a polymer dispersed liquid crystal Electrically Switchable Bragg Grating (ESBG).

Please replace paragraph [0010] with the following amended paragraph:

A2
[0010] The undiffracted beam 40 is reflected by the polarization-converting reflector 50 such that the reflected beam 60 has a polarization state that is rotated by 90 degrees with respect to the polarization state of the undiffracted beam 40. There are several well-known combinations of optical components that can be used to form a polarization-converting reflector. Specifically, the polarization-converting 50 may be comprised of a mirror 50a and a ~~one-quarter-wave~~ quarter-wave retarder 50b, in which case the retarder must be oriented with its optical axis at a 45-degree angle with respect to the fringe planes in the ESBG device. Alternately, the polarization-converting reflector 50 may be comprised of a mirror 50a and a 45-degree Faraday rotator 50b, in which case precise alignment of the Faraday rotator is not required.

Please replace the ABSTRACT with the following amended ABSTRACT:

A3
An apparatus is disclosed for an electrically variable optical attenuator. The apparatus is comprised of ~~an~~ a polymer dispersed liquid crystal Electrically Switchable Bragg Grating device and a polarization-converting reflector. The polarization-converting reflector may be a ~~one-quarter-wave~~ quarter-wave retardation plate or a 45-degree Faraday rotation plate in combination with a mirror. The electrically variable optical attenuator is suited for use in fiber optics communications systems.

An unmarked version of the replacement ABSTRACT is provided in an Appendix to this paper.

Application No. 10/074,653
Amendment dated August 25, 2003
Reply to Office Action of June 25, 2003

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

AY
Claim 1 (currently amended): A variable optical attenuator comprising an a polymer dispersed liquid crystal Electrically Switchable Bragg Grating device positioned to accept an incident optical beam and divide said beam into a transmitted undiffracted component and a diffracted component, and a polarization-converting reflector positioned to reflect said undiffracted beam back through said Electrically Switchable Bragg grating device.

Claim 2 (currently amended): The device of claim 1 wherein said polarization converting reflector is comprised of a ~~one-quarter-wave~~ quarter-wave retardation plate and a mirror.

Claim 3 (original): The device of claim 1 wherein said polarization converting reflector is comprised of a 45-degree Faraday rotation plate and a mirror.